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PATENT APPLN. NO. 10/540,624
RESPONSE UNDER 37 C.F.R. § 1.116

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IN THE CLAIMS:

1. (previously presented) A layered product as a molded object comprising a thermosetting resin layer, a thermoplastic resin layer and groups of reinforcing fibers consisting of numerous continuous filaments, wherein said thermosetting resin layer and said thermoplastic resin layer are integrated at the interface between these layers forming a two-layer structure in such a manner that said thermosetting resin layer and said thermoplastic resin layer define a rugged interface; a set of filaments among said groups of reinforcing fibers is impregnated with both of the resin of said thermosetting resin layer and the resin of said thermoplastic resin layer by passing through the interface; the maximum thickness of an area where said continuous filaments exist in said thermoplastic resin layer is 10 μ m or more; and the face of said thermoplastic resin layer opposite to said interface is positioned on the surface of said molded object.

2. (previously presented) A layered product, according to claim 1, wherein said numerous continuous filaments are arranged in one direction.

3. (original) A layered product, according to claim 1, wherein

the glass transition temperature of the resin forming said thermosetting resin layer is 60°C or higher.

4. (cancelled)

5. (previously presented) A layered product, according to claim 1, wherein said maximum thickness is in the range of 10 μm to 1,000 μm .

6. (original) A layered product, according to claim 1, wherein the surface area of said thermoplastic resin layer accounts for 0.1 to 50% of the surface area of the layered product.

7. (previously presented) A layered product as a molded object comprising two layered products each of which is defined in claim 1, wherein the face of said thermoplastic resin layer of one of the two layered products and the face of said thermoplastic resin layer of the other layered product of the two layered products are positioned on the surfaces of said molded object opposite to each other.

8. (previously presented) A layered product, according to

claim 1, wherein the bonding strength of the layered product is 6 MPa or higher at room temperature.

9 - 10. (canceled)

11. (previously presented) A layered product, according to claim 1, wherein the numerous continuous filaments constituting said groups of reinforcing fibers are carbon fibers.

12. (previously presented) A layered product, according to claim 1, wherein said thermosetting resin is a resin mainly composed of an epoxy resin.

13. (previously presented) A layered product, according to claim 1, wherein said thermoplastic resin is at least one resin selected from a group consisting of polyamide-based resins, polyester-based resins, polycarbonate-based resins, styrene-based resins, EVA resin, urethane-based resins, acrylic resins, polyolefin-based resins and PPS-based resins.

14. (withdrawn) A process for producing a layered product as set forth in claim 1 or 9, comprising the steps of disposing a base

material for thermal bonding composed of a thermoplastic resin, on a surface of a prepreg obtained by impregnating groups of reinforcing fibers consisting of numerous continuous filaments with a thermosetting resin not yet set, and impregnating said groups of reinforcing fibers with the thermoplastic resin of said base material for thermal bonding, during the setting reaction of said thermosetting resin or during preheating before the setting reaction.

15. (withdrawn) A process for producing a layered product, according to claim 14, wherein a pressing pressure of 0.1 MPa or higher is caused to act when said groups of reinforcing fibers are impregnated with the thermoplastic resin.

16. (previously presented) An integrated molded object which comprises a first member composed of a layered product as set forth in claim 1 and a second member composed of another structural member, wherein the first member and the second member are bonded to each other through said thermoplastic resin in said first member.

17. (previously presented) An integrated molded object,

according to claim 16, wherein said second member is at least one member selected from the group consisting of a member composed of a layered product as a molded object comprising a thermosetting resin layer, a thermoplastic resin layer and groups of reinforcing fibers consisting of numerous continuous filaments, wherein said thermosetting resin layer and said thermoplastic resin layer are integrated at the interface between these layers with a two-layer structure in such a manner that the resin of said thermosetting resin layer and the resin of said thermoplastic resin layer are formed to be rugged at the interface; a set of filaments among said groups of reinforcing fibers is kept in contact with both of the resin of said thermosetting resin layer; the maximum thickness of an area where said continuous filaments exist in said thermoplastic resin layer is 10 μ m or more; and the face of said thermoplastic resin layer opposite to said interface is positioned on the surface of said molded object; a member composed of a thermoplastic resin composition and a member composed of a metallic material.

18. (withdrawn) A process for producing an integrated molded object as set forth in claim 16, comprising the step of integrating said first member and said second member with each other, by at least one integration method selected from the group consisting of

thermal welding, vibration welding, ultrasonic welding, laser welding, insert injection molding and outsert injection molding.

19. (original) An integrated molded object, according to claim 16, which is a part member or a housing of an electric or electronic apparatus, an office automation apparatus, a household electric appliance or a medical apparatus.

20. (original) An integrated molded object, according to claim 16, which is a part member or a panel of a motor vehicle, a two-wheeler, a bicycle, an aircraft or an architecture.

21. (withdrawn) A base material for thermal bonding of adhering members of identical and/or different kinds, wherein the bonding strength (S) of the test piece of the layered product defined in the specification based on ISO4587 is 5.0 MPa or higher at a temperature of 100°C and 1.0 MPa or lower at a temperature of 200°C.

22. (withdrawn) A base material for thermal bonding, according to claim 21, wherein where the bonding strength at a temperature t (°C) is S_t (MPa) and the bonding strength at a temperature ($t + 30$)

(°C) is $S_{(t+30)}$ (MPa), the temperature t satisfying the relation of
 $St \geq 3 \times S_{(t+30)}$ is from 100°C to 200°C.

23. (withdrawn) A base material for thermal bonding, according to claim 21, wherein said base material is composed of a copolyamide-based resin composition.

24. (withdrawn) A base material for thermal bonding, according to claim 23, wherein said copolyamide contains ternary copolyamide 6/66/610 as a component.

25. (withdrawn) A base material for thermal bonding, according to claim 21, wherein said base material is in a form of a nonwoven fabric or film having a unit weight of 1 to 100 g/m².

26. (withdrawn) A process for producing a layered product, according to claim 14, wherein said base material for thermal bonding is a base material for thermal bonding comprising adhering members of identical and/or different kinds, wherein the bonding strength (S) of the test piece of the layered product defined in the specification based on ISO4587 is 5.0 MPa or higher at a temperature of 100°C and 1.0 MPa or lower at a temperature of

200°C.

27. (withdrawn) An electromagnetic-shielding molded object, obtained by integrating a first structural member composed of a resin composition having groups of conductive fibers consisting of numerous continuous filaments arranged therein and a second structural member composed of a thermoplastic resin composition, wherein the electromagnetic shielding property of said first structural member at a frequency of 1 GHz measured according to the KEC method is 40 dB or more.

28. (withdrawn) An electromagnetic-shielding molded object, according to claim 27, wherein said first structural member is a layered product comprising (1) a thermosetting resin layer, a thermoplastic resin layer and groups of reinforcing fibers consisting of numerous continuous filaments, wherein said thermosetting resin layer and said thermoplastic resin layer are integrated at the interface between these layers in such a manner that the resin of said thermosetting resin layer and the resin of said thermoplastic resin layer are formed to be rugged at the interface; a set of filaments among said groups of reinforcing fibers is kept in contact with at least the resin of said

thermosetting resin layer while the other set of filaments among said groups of reinforcing fibers is kept in contact with at least the resin of said thermoplastic resin layer; and the face of said thermoplastic resin layer opposite to said interface is positioned on the surface of said molded object, or (2) a thermosetting resin composition having groups of reinforcing fibers consisting of numerous continuous filaments arranged in a thermosetting matrix resin and a film composed of a thermoplastic resin composition formed at least on a portion of the surface of said thermosetting resin composition, wherein the normal bonding strength defined in the specification between the layered product and another molded object bonded through said film is 10 MPa or higher at a temperature of 40°C and lower than 10 MPa at a temperature of 140°C; and wherein the numerous continuous filaments constituting said groups of reinforcing fibers are carbon fibers.

29. (withdrawn) An electromagnetic-shielding molded object, according to claim 27, wherein the flexural modulus of said first structural member based on ASTM D790 is 8 GPa or more as the test piece defined in the specification.

30. (withdrawn) An electromagnetic-shielding molded object,

according to claim 27, wherein the average thickness of said first structural member is 1.6 mm or less.

31. (withdrawn) An electromagnetic-shielding molded object, according to claim 27, wherein when the molded object is observed from outside, a pattern based on an arranged state of said numerous continuous filaments can be observed.

32. (withdrawn) An electromagnetic-shielding molded object, according to claim 27, wherein the resin composition in said first structural member is a thermosetting resin.

33. (withdrawn) An electromagnetic-shielding molded object, according to claim 27, wherein the resin composition in said first structural member is a thermoplastic resin.

34. (withdrawn) An electromagnetic-shielding molded object, according to claim 27, wherein the thermoplastic resin composition of said second structural member contains discontinuous carbon fibers; the weight average fiber length L_w of said carbon fibers is 0.4 mm or more; and the ratio L_w/L_n of the weight average fiber length L_w to the number average fiber length L_n is from 1.3 to 2.0.

35. (withdrawn) An electromagnetic-shielding molded object, which is a part member or a housing of an electric or electronic apparatus, an office automation apparatus, a household electric appliance or a medical apparatus.

36. (withdrawn) An electromagnetic-shielding molded object, according to claim 35, wherein said first structural member is positioned at least at a portion of a top face portion of said housing, and said second structural member is positioned at a member including any one or more of a frame, boss, rib, hinge and runner of said housing.

37. (withdrawn) A process for producing an electromagnetic-shielding molded object as set forth in claim 27, comprising a first step of inserting a first structural member produced by molding beforehand, into a mold and a second step of injecting a thermoplastic resin composition to form a second structural member, to the first structural member inserted in said mold, for integrating said second structural member with said first structural member.

38. (withdrawn) A process for producing an electromagnetic-

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shielding molded object as set forth in claim 27, comprising the step of integrating a first structural member produced by molding beforehand and a second structural member produced by injection molding beforehand, by means of ultrasonic welding.